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June 27, 2001

Tillman U. Gerngross

1645

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[Signature]

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¹ Unique citation designation number ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant to place a check mark here if English language Translation is attached.

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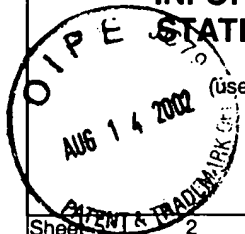
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Substitute for form 1449A/PTO		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/892,591
		Filing Date	June 27, 2001
		First Named Inventor	Tillman U. Gerngross
		Group Art Unit	1645
		Examiner Name	
Sheet 2	of 2	Attorney Docket Number	GFI 100

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OTHER ART -- NON PATENT LITERATURE DOCUMENTS

Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
ca		NAKAYAMA, et al., "OCH1 encodes a novel membrane bound mannosyltransferase outer chain elongation of asparagine-linked oligosaccharides," <i>EMBO Journal</i> 11(7): 2511-2519 (1992).	
		NIKAWA, et al., "Structural and functional conservation of human and yeast HCP1 genes which can suppress the growth defect of the <i>Saccharomyces cerevisiae</i> ire15 mutant," <i>Gene</i> 171(1): 107-111 (1996).	
		WIGGINS, et al., "Activity of the yeast MNN1 alpha-1,3-mannosyltransferase requires a motif conserved in many other families of glycosyltransferases," <i>Proc. Nat. Acad. Sci. USA</i> 95(14): 7945-7950 (1998).	

Examiner's Signature		Date Considered	6/3/03
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**INFORMATION DISCLOSURE
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Sheet 1 of 9

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	US Patent Document		Name of Patentee or Applicant of Cited Document	Date of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
CQ		4,414,329		Wegner	11-08-1983	
		4,617,274		Wegner	10-14-1986	
		4,683,293		Craig	07-28-1987	
		4,775,622		Hitzeman et al.	10-04-1988	
		4,808,537		Stroman et al.	02-28-1989	
		4,812,405		Lair et al.	03-14-1989	
		4,818,700		Cregg et al.	04-04-1989	
		4,837,148		Cregg	06-06-1989	
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		4,879,231		Stroman et al.	11-07-1989	
		4,882,279		Cregg	11-21-1989	
		4,885,242		Cregg	12-05-1989	
		4,925,796		Bergh et al.	05-15-1990	
		4,929,555		Cregg et al.	05-29-1990	

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		Office. ³	Number ⁴	Kind Code ⁵ (if known)				
CQ		EP	0 905 232	A1	Kirin Beer Kabushiki Kaisha	03-31-1999		
		EP	1 054 062	A1	Kyowa Hakko Kogyo Co., Ltd.	11-22-2000		
		WO	96/21038		Alko Group Ltd	07-11-1996		
		WO	98/05768		The Austin Research Institute	02-12-1998		
		WO	99/31224		National Research Council of Canada	06-24-1999		
		WO	99/54342		Umana et al.	10-28-1999		

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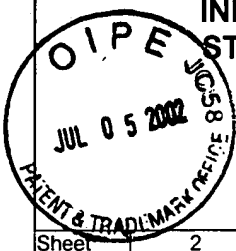
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 9 Attorney Docket Number GFI 100

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CQ		4,935,349		McKnight et al.	06-19-1990	
		5,002,876		Sreekrishna et al.	03-26-1991	
		5,004,688		Craig et al.	04-02-1991	
		5,032,516		Cregg	07-16-1991	
		5,032,519		Paulson et al.	07-16-1991	
		5,047,335		Paulson et al.	09-10-1991	
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		5,166,329		Cregg	11-24-1992	
		5,324,663		Lowe	06-28-1994	
		5,595,900		Lowe	01-27-1997	
		5,602,003		Pierse et al.	02-11-1997	
		5,707,828		Sreekrishna et al.	01-13-1998	
		5,766,910		Fukuda et al.	06-16-1998	
		5,834,251		Maras et al.	11-10-1998	

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		Office. ³	Number ⁴	Kind Code ⁵ (if known)				
CQ		WO	01/14522	A1	Kirin Beer Kabushiki Kaisha	03-01-2001		
CQ		WO	01/25406		University of Victoria Innovation & Development Corp	04-12-2001		
CQ		WO	02/00856		Flanders Interuniversity Institute for Biotechnology	01-01-2002		

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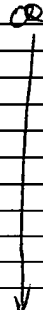
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Substitute for form 1449A/PTO <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 2px solid black; border-radius: 50%; padding: 10px; text-align: center; margin-right: 10px;"> O I P E JUL 05 2002 PATENT & TRADEMARK OFFICE </div> <div> INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) </div> </div>		Complete if Known	
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Filing Date		June 27, 2001	
First Named Inventor		Tillman U. Gerngross	
Group Art Unit		1645	
Examiner Name		GFI 100	
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		5,849,904		Gerardy-Schahn et al.	12-15-1998	
		5,854,018		Hitzemane et al.	12-29-1998	
		5,861,293		Kojiri et al.	01-19-1999	
		5,910,570		Elhammer et al.	06-08-1999	
		5,945,314		Prieto et al.	08-31-1999	
		5,945,322		Gotschlich	08-31-1999	
		5,955,347		Lowe	09-21-1999	
		5,955,422		Lin	09-21-1999	
		5,962,294		Paulson et al.	10-05-1999	
		6,017,743		Tsuji et al.	01-25-2000	
		6,096,512		Elhammer et al.	08-01-2000	
		6,204,431		Prieto et al.	03-20-2001	

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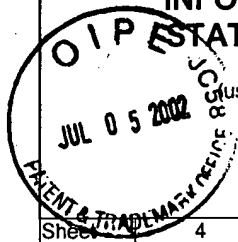
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		Filing Date	June 27, 2001
		First Named Inventor	Tillman U. Gerngross
		Group Art Unit	1645
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Sheet 4 of 9	Attorney Docket Number	GFI 100	



OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
CR	✓	ALTMANN, et al., "Processing of asparagine-linked oligosaccharides in insect cells: evidence for alpha-mannosidase II," <i>Glycoconj. J</i> 12(2):150-155 (1995).	
	✓	ALTMANN, et al., "Insect cells as hosts for the expression of recombinant glycoproteins," <i>Glycoconj. J.</i> 16(2):109-123 (1999).	
	✓	ANDERSEN, et al., "The effect of cell-culture conditions on the oligosaccharide structures of secreted glycoproteins," <i>Cur. Opin. Biotechnol</i> 5(5) 546-549 (1994).	
	✓	AOKI, et al., "Expression and activity of chimeric molecules between human UDP-galactose transporter and CMP-sialic acid transporter," <i>J Biochem (Tokyo)</i> 126(5): 940-950 (1999).	
	✓	BARDOR, et al., "Analysis of the N-glycosylation of recombinant glycoproteins produced in transgenic plants," <i>Trends in Plant Science</i> 4(9): 376-380 (1999).	
	✓	BEAUDET, et al., "High-level expression of mouse Mdr3 P-glycoprotein in yeast <i>Pichia pastoris</i> and characterization of ATPase activity," <i>Methods Enzymol</i> 292: 397-413 (1998).	
	✓	BERKA, et al., "The Filamentous Fungus <i>Aspergillus-Niger</i> Var <i>Awamori</i> as Host for the Expression and Secretion of Fungal and Non-Fungal Heterologous Proteins," <i>Abstr Papers Amer Chem Soc</i> 203: 121-BIOT (1992).	
	✓	BERNINSONE, et al., "Functional expression of the murine Golgi CMP-sialic acid transporter in <i>saccharomyces cerevisiae</i> ," <i>J. Biol. Chem.</i> 272(19):12616-12619 (1997).	
	✓	BERNINSONE, et al., "Regulation of yeast Golgi glycosylation. Guanosine diphosphatase functions as a homodimer in the membrane," <i>J. Biol. Chem</i> 270(24): 14564-14567 (1995).	
	✓	BERNINSONE, et al., "The Golgi guanosine diphosphatase is required for transport of GDP-mannose into the lumen of <i>Saccharomyces cerevisiae</i> Golgi vesicles," <i>J. Biol. Chem</i> 269(1):207-211 (1994).	

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CQ	✓	BONNEAUD, et al., "A family of low and high copy replicative, integrative and single-stranded S. cerevisiae/E. coli shuttle vectors," <i>Yeast</i> 7(6): 609-615 (1991).	
	✓	BRETTHAUER, et al., "Glycosylation of Pichia pastoris-derived proteins," <i>Biotechnol Appl Biochem</i> 30(Pt 3): 193-200 (1999).	
	✓	CEREHINO, et al., "Heterologous protein expression in the methylotrophic yeast Pichia pastoris," <i>FEMS Microbiol Rev</i> 24(1): 45-66 (2000).	
	✓	CHANDRASEKARAN, et al., "Purification and properties of alpha-D-mannose:beta-1,2-N-acetylglucosaminyl-transferases and alpha-D-mannosidases from human adenocarcinoma," <i>Cancer Res.</i> 44(9):4059-68 (1984).	
	✓	CHIBA, et al., "Production of human compatible high mannose-type (Man5GlcNAc2) sugar chains in Saccharomyces cerevisiae," <i>J. Biol. Chem</i> 273(41): 26298-26304 (1998).	
	✓	COLE, et al., "Modelling the growth, survival and death of microorganisms in foods: the UK food micromodel approach," <i>J Cell Biochem</i> 23(3-4) 265-265 (1994).	
	✓	DENTE, "Human alpha-1-acid glycoprotein genes," <i>Prog. Clin. Biol. Res</i> 300:85-98 (1989).	
	✓	EADES, et al., "Characterization of the class I alpha-mannosidase gene family in the filamentous fungus Aspergillus nidulans," <i>Gene</i> 255(1):25-34 (2000).	
	✓	ECKHARDT, et al., "Molecular cloning of the hamster CMP-sialic acid transporter," <i>Eur. J. Biochem.</i> 248(1): 187-192 (1997).	
	✓	GRAHAM, et al., "Compartmental organization of Golgi-specific protein modification and vacuolar protein sorting events defined in a yeast sec18 (NSF) mutant," <i>J. Cell. Biol.</i> 114(2):207-218 (1991).	

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CQ	✓	GUILLEN, et al., "Mammalian Golgi apparatus UDP-N-acetylglucosamine transporter: molecular cloning by phenotypic correction of a yeast mutant," <i>Proc. Natl. Acad. Sci. USA</i> 95(14): 7888-7892 (1998).	
	✓	HARKKI, et al., "A Novel Fungal Expression System - Secretion of Active Calf Chymosin from the Filamentous Fungus <i>Trichoderma-Reesei</i> ," <i>Bio-Tech</i> 7:596-603 (1989).	
	✓	ICHISHIMA, et al., "Molecular and enzymic properties of recombinant 1, 2-alpha-mannosidase from <i>Aspergillus saitoi</i> overexpressed in <i>Aspergillus oryzae</i> cells," <i>Biochem. J.</i> 339(Pt 3):589-597 (1999).	
	✓	ISHIDA, et al., "Molecular cloning and functional expression of the human Golgi UDP-N-acetylglucosamine transporter," <i>J. Biochem. (Tokyo)</i> 126(1): 68-77 (1999).	
	✓	JARVIS, et al., "Engineering N-glycosylation pathways in the baculovirus-insect cell system," <i>Curr Opin Biotechnol</i> 9(5):528-33 (1998).	
	✓	KAINUMA, et al., "Coexpression of alpha1,2 galactosyltransferase and UDP-galactose transporter efficiently galactosylates N- and O-glycans in <i>Saccharomyces cerevisiae</i> ," <i>Glycobiology</i> 9(2): 133-141 (1999).	
	✓	KALSNER, et al., "Insertion into <i>Aspergillus nidulans</i> of functional UDP-GlcNAc: alpha 3-D- mannoside beta-1,2-N-acetylglucosaminyl-transferase I, the enzyme catalysing the first committed step from oligomannose to hybrid and complex N-glycans," <i>Glycoconj. J.</i> 12(3):360-370 (1995).	
	✓	KHATRA, et al., "Some kinetic properties of human milk galactosyltransferase," <i>Eur. J. Biochem.</i> 44:537-560 (1974).	
	✓	KREZDORN, et al., "HUMAN BETA-1,4 GALACTOSYLTRANSFERASE AND ALPHA-2,6 SIALYLTRANSFERASE EXPRESSED IN <i>SACCHAROMYCES-CEREVISIAE</i> ARE RETAINED AS ACTIVE ENZYMES IN THE ENDOPLASMIC-RETICULUM," <i>J BIOCHEM</i> 220(3): 809-817 (1994).	
	✓	MALISSARD, et al., "Expression of functional soluble forms of human beta-1, 4-galactosyltransferase I, alpha-2,6-sialyltransferase, and alpha-1, 3-fucosyltransferase VI in the methylotrophic yeast <i>Pichia pastoris</i> ," <i>Biochem Biophys Res Commun</i> 267(1): 169-173 (2000).	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT Use as many sheets as necessary)		Application Number	09/892,591
		Filing Date	June 27, 2001
		First Named Inventor	Tillman U. Gerngross
		Group Art Unit	1645
		Examiner Name	
Sheet 1 of 9		Attorney Docket Number	GFI 100

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CR		MARAS, et al., "In vitro conversion of the carbohydrate moiety of fungal glycoproteins to mammalian-type oligosaccharides - Evidence for N-acetylglucosaminyltransferase-I-accepting glycans from <i>Trichoderma reesei</i> ," <i>European Journal of Biochemistry</i> 249(3): 701-707 (1997).	
		MARAS, et al., "Molecular cloning and enzymatic characterization of a <i>Trichoderma reesei</i> 1,2-alpha-D-mannosidase," <i>J. Biotechnol.</i> 77(2-3):255-263 (2000).	
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		MOENS, et al., "Glycoproteins in prokaryotes," <i>Arch. Microbiol</i> 168(3):169-175 (1997).	
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		PEREZ, et al., "Transport of sugar nucleotides into the lumen of vesicles derived from rat liver rough endoplasmic reticulum and Golgi apparatus," <i>Methods Enzymol</i> 138: 709-715 (1987).	
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CQ		REN et al., "Purification and properties of a Golgi-derived (alpha 1,2)-mannosidase-I from baculovirus-infected lepidopteran insect cells (IPLB-SF21AE) with preferential activity toward mannoside6-N-acetylglucosamine2," <i>Biochem.</i> 34(8): 2489-2495 (1995).	
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		RUTHER et al., "c-fos expression interferes with thymus development in transgenic mice," <i>Cell</i> 53(6): 847-856; (1988).	
		Schachter et al., "The 'yellow brick road' to branched complex N-glycans," <i>Glycobiology</i> 1(5): 453-461 (1991).	
		SCHNEIKERT et al., "Characterization of a novel mouse recombinant processing alpha-mannosidase," <i>Glycobiology</i> 4(4): 445-450 (1994).	
		SCHWIENSTEK et al., "Golgi localization in yeast is mediated by the membrane anchor region of rat liver sialyltransferase," <i>J Biol Chem</i> 270(10): 5483-5489 (1995).	
		SEGAWA, et al. "Schizosaccharomyces pombe UDP-galactose transporter: identification of its functional form through cDNA cloning and expression in mammalian cells," <i>FEBS Lett</i> 451(3): 295-298 (1999).	
		SIKORSKI, et al., "A system of shuttle vectors and yeast host strains designed for efficient manipulation of DNA in <i>Saccharomyces cerevisiae</i> ," <i>Genetics</i> ; 122(1): 19-27 (1989).	
		SOMMERS, et al., "Transport of Sugar Nucleotides into Rat-Liver Golgi." <i>J. Cell Biol.</i> 91(2): A406-A406 (1981).	
		SOMMERS, et al., "Transport of sugar nucleotides into rat liver Golgi. A new Golgi marker activity," <i>J. Biol. Chem</i> ; 257(18): 811-817 (1982).	

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CQ	✓	STAUB, et al., "High-yield production of a human therapeutic protein in tobacco chloroplasts," <i>Nature Biotechnology</i> 18(3): 333-338 (2000).	
	✓	SVETINA, et al., "Expression of catalytic subunit of bovine enterokinase in the filamentous fungus <i>Aspergillus niger</i> ," <i>J. Biotechnol</i> 76(2-3): 245-251 (2000).	
	✓	TAKEUCHI, "Trial for molecular breeding of yeast for the production of glycoprotein therapeutics," <i>Trends in Glycoscience and Glycotechnology</i> 9:S29-S35 (1997).	
	✓	WARE, et al., "Expression of Human Platelet Glycoprotein Ib-Alpha in Transgenic Mice," <i>Thrombosis and Haemostasis</i> 69(6): 1194-1194 (1993).	
	✓	WEIKERT, et al., "Engineering Chinese hamster ovary cells to maximize sialic acid content of recombinant glycoproteins," <i>Nat Biotech</i> 17(11): 1116-1121 (1999).	
	✓	WERNER, et al., "Appropriate mammalian expression systems for biopharmaceuticals," <i>Arzneimittelforschung</i> 48(8):870-880 (1998).	
	✓	YANG, et al., "Effects of ammonia on CHO cell growth, erythropoietin production, and glycosylation," <i>Biotechnol Bioengin</i> 68(4): 370-380 (2000).	
	✓	YOKO-O, et al., "Schizosaccharomyces pombe och1(+) encodes alpha-1,6-mannosyltransferase that is involved in outer chain elongation of N-linked oligosaccharides," <i>FEBS Lett.</i> 489(1):75-80 (2001).	
	✓	YOSHIDA, et al., "1,2-alpha-D-mannosidase from <i>Penicillium citrinum</i> : molecular and enzymic properties of two isoenzymes," <i>Biochem. J.</i> 290(Pt 2):349-354 (1993).	
	✓	YOSHIDA, et al., "Expression and characterization of rat UDP-N-acetylglucosamine: alpha-3-D-mannoside beta-1,2-N-acetylglucosaminyltransferase I in <i>Saccharomyces cerevisiae</i> ," <i>Glycobiology</i> 9(1): 53-58 (1999).	

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